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CLAIMS:

1. A system for delivering a supply of gases to a patient comprising:
gases supply means providing a flow of gases,
humidification means receiving said gases from said gases supply means and
5 capable of humidifying said gases up to a level of humidity prior to delivery to said patient,
transportation means conveying said gases from said humidification means to said patient, and
sensing means to sense the humidity, temperature or other attributes of said
10 gases flow, said sensing means contained within a housing that is releasably coupled in line between said humidification means and said transportation means.
2. A system according to claim 1 wherein said other attribute includes but is not limited to pressure, oxygen level or flow.
3. A system according to claim 1 or 2 wherein said sensing means includes a
15 cartridge or open tubular section coupled to a sensor, such that said sensor is exposed to said gases flow through said cartridge or open tubular section.
4. A system according to any one of claims 1 to 3 wherein said sensor is contained in a housing and said housing extends through or resides within said cartridge or open tubular section and at least part of said housing is exposed to said gases flow.
- 20 5. A system according to claim 4 wherein said cartridge or open tubular section includes a port that said housing is sealably connected to.
6. A system according to claim 5 wherein said port of said housing exposed to said gases flow is covered with breathable or filter material.
7. A system according to claim 5 wherein said port is covered by a breathable or
25 filter material.
8. A system according to claim 6 or 7 wherein said breathable or filter material is a semi-permeable or hydrophilic material.
9. A system according to claim 6 or 7 wherein said breathable or filter material is monolithic film, microporous media or electrostatic filter.

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10. A system according to any one of claims 1 to 9 wherein said sensing means includes a sensor heating means to provide heat to said sensor.

11. A system according to claim 10 wherein said sensor heating means is contained within said housing.

5 12. A system according to any one of claims 1 to 11 wherein said humidification means includes a humidification chamber adapted to receive a volume of water and water heating means to heat said water, said gases passing through said humidification chamber, through a gases inlet and out a gases outlet, and evaporating said water, said gases thereby being humidified.

10 13. A system according to any one of claims 1 to 12 wherein said humidification means includes a controller to control said water heating means and the level of humidity or temperature of said gases flow.

14. A system according to claim 13 wherein said sensing means is connected to said controller and conveys a sensed level of humidification of said gases to said controller,
15 said controller controlling said water heating means to alter said sensed level of humidification of said gases to a predetermined humidification level.

15. A system according to claim 14 wherein said predetermined humidification level is such that said patient receives said gases at 37°C and containing 44mg of water vapour per litre.

20 16. A system according to claim 12 wherein in use, connections are formed between one side of said cartridge or open tubular section and said outlet of said humidification means and the other side of said cartridge or open tubular section and said transportation means.

17. A system according to claim 16 wherein said connections are one of a friction
25 fitting, bayonet fitting, snap fitting or threadable connection.

18. Sensing means to sense humidity, temperature or other attributes of a gases flow after said gases have been humidified by a humidifier and providing feedback to a controller which controls said humidifier, said sensing means comprising:

a cartridge or open tubular section,

30 a sensor, and

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breathable means,

wherein said cartridge or open tubular section is coupled to said sensor, such that said sensor is exposed to said gases flow through said section of conduit by way of said breathable means.

- 5 19. Sensing means according to claim 18 including a housing containing said sensor, said housing extending through or residing within said cartridge or open tubular section and at least part of said housing being exposed to said gases flow.
20. Sensing means according to claim 18 wherein said breathable means is a semi-permeable or hydrophilic material.
- 10 21. Sensing means according to claim 18 wherein said breathable means is monolithic film, microporous media or electrostatic filter.
22. Sensing means according to claim 18 wherein said sensor has a heating element attached to minimise saturation of said sensor and provide for optimal sensor performance.
- 15 23. Sensing means according to claim 19 wherein said sensor housing has a heating element attached to said housing to minimise saturation of said sensor and provide for optimal sensor performance.
24. A system for delivering a supply of gases to a patient as herein described with reference to the accompanying figures.
- 20 25. Sensing means as herein described with reference to the accompanying figures.